**WORK**

**Work =  **

* **is the equation that allows the calculation of the work required to accelerate a mass to a final velocity.**
* **The work performed on a clubhead from the top of the stroke to impact determines theof the clubhead at impact.**

 **How much additional work would be required to increase a clubhead's velocity from 80 to 90 mph, to 100 mph, to 110 mph, etc.?**

 **Since the mass remains the same, squaring the velocity is all that is needed.**

|  |  |  |
| --- | --- | --- |
|  |  | **ratio of 80 mph to the others** |
| **80** | **6400** |  |
| **90** | **8100** | **1.3** |
| **100** | **10,000** | **1.6** |
| **110** | **12,100** | **1.9** |
| **120** | **14,400** | **2.25** |
| **130** | **16,900** | **2.6** |
| **140** | **19,600** | **3** |

 **What the equation shows is that it takes 2.25 times the work to go from 80 to 120 mph. The reason it is so difficult to increase clubhead velocity is that it takes a large increase in work. The work required is velocity squared.**

 **To produce more work, you must have fast twitch muscle that move the arms with speed. You must have developed a stretch-reflex of the right wrist that releases at the 0.06 seconds before impact of the clubhead with the ball. This is where body mass or weight can play a major role. There is a correlation between muscle mass or size and the number of fast twitch muscles.**

 **A factor in speed production is the type of muscle fibers.**

* **TYPE IIx fibers are ten times faster than TYPE Ia and 2 times faster than TYPE IIa.**

 **Another factor in speed production in traditional mechanics is the stretch reflex of the right wrist at 0.06 seconds before impact. Stretch reflex is developed when you are young and hit thousands of golf balls as far as possible.**

 **Women, in general, will not hit golf balls as far as men. They do not have enough muscle fibers to generate the greater speeds.**

 **Most long drivers, the guys who generate between 130 and 150 mph, who drive the ball consistently over 350 yards, have the correct muscle fiber type and high right wrist stretch reflex.**

**Summary:**

* **Clubhead momentumis transferred into the ball.**
* **You DO NOT transfer clubhead velocity squared into the ball. This is the work required by the golfer to increase clubhead speed. The work you perform is what is squared.**
* **It takes TYPE IIx muscle fiber to produce 10 times more speed than a TYPE Ia.**
* **It takes velocity squared work by the golfer to increase the clubhead's velocity!**